

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 920095-260374

Component Diesel Engine

Fluid

PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

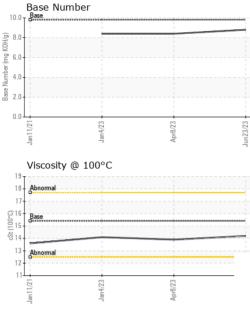
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

			I Jan2023			
SAMPLE INFORI	MATION	method	limit/base	current	history 1	history 2
Sample Number		Client Info		GFL0079366	GFL0079276	GFL0061268
Sample Date		Client Info		23 Jun 2023	08 Apr 2023	04 Jan 2023
Machine Age	hrs	Client Info		8324	7802	7214
Oil Age	hrs	Client Info		700	588	700
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history 1	history 2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history 1	history 2
Iron	ppm	ASTM D5185m	>100	10	12	10
Chromium	ppm		>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m		2	2	2
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m	>330	<1	0	<1
Tin	ppm	ASTM D5185m	>15	0	0	<1
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	nnm	ASTM D5185m		•	0	0
Caumum	ppm	ASTIVI DOTODITI		0	0	0
ADDITIVES	ppili	method	limit/base	current	0 history 1	history 2
	ppm		limit/base			
ADDITIVES		method ASTM D5185m		current	history 1	history 2
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m	0	current 2	history 1 1	history 2 2
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0	current 2 0 61	history 1 1 0	history 2 2 0
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	0 0 60	2 0 61 <1	history 1 1 0 54	history 2 2 0 59
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 2 0 61	history 1 1 0 54 <1 885	history 2 2 0 59 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	Current 2 0 61 <1 992 1080	history 1 1 0 54 <1 885 985	history 2 2 0 59 <1 932 1035
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	Current 2 0 61 <1 992 1080 1065	history 1 1 0 54 <1 885 985 918	history 2 2 0 59 <1 932 1035 1010
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	Current 2 0 61 <1 992 1080	history 1 1 0 54 <1 885 985	history 2 2 0 59 <1 932 1035
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	Current 2 0 61 <1 992 1080 1065 1326 3830	history 1 1 0 54 <1 885 985 918 1186 3064	history 2 2 0 59 <1 932 1035 1010 1249 3677
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	Current 2 0 61 <1 992 1080 1065 1326 3830 Current	history 1 1 0 54 <1 885 985 985 918 1186 3064 history 1	history 2 2 0 59 <1 932 1035 1010 1249 3677 history 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	Current 2 0 61 <1 992 1080 1065 1326 3830 Current 2	history 1 1 0 54 <1 885 985 918 1186 3064 history 1 2	history 2 2 0 59 <1 932 1035 1010 1249 3677 history 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	current 2 0 61 <1 992 1080 1065 1326 3830 current 2 4	history 1 1 0 54 <1 885 985 918 1186 3064 history 1 2 3	history 2 2 0 59 <1 932 1035 1010 1249 3677 history 2 2 4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	current 2 0 61 <1 992 1080 1065 1326 3830 current 2 4 3	history 1 1 0 54 <1 885 985 918 1186 3064 history 1 2 3 3	history 2 2 0 59 <1 932 1035 1010 1249 3677 history 2 2 4 3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >25	Current 2 0 61 <1 992 1080 1065 1326 3830 Current 2 4 3 Current	history 1 1 0 54 <1 885 985 918 1186 3064 history 1 2 3 3 history 1	history 2 2 0 59 <1 932 1035 1010 1249 3677 history 2 2 4 3 history 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Silicon Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 limit/base >20	current 2 0 61 <1 992 1080 1065 1326 3830 current 2 4 3 current 0.6	history 1 1 0 54 <1 885 985 918 1186 3064 history 1 2 3 history 1 0.8	history 2 2 0 59 <1 932 1035 1010 1249 3677 history 2 2 4 3 history 2 0.7
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Silicon Sidium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	current 2 0 61 <1 992 1080 1065 1326 3830 current 2 4 3 current 0.6 7.6	history 1 1 0 54 <1 885 985 918 1186 3064 history 1 2 3 history 1 0.8 7.4	history 2 2 0 59 <1 932 1035 1010 1249 3677 history 2 2 4 3 history 2 0.7 7.0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 limit/base >20	current 2 0 61 <1 992 1080 1065 1326 3830 current 2 4 3 current 0.6	history 1 1 0 54 <1 885 985 918 1186 3064 history 1 2 3 history 1 0.8	history 2 2 0 59 <1 932 1035 1010 1249 3677 history 2 2 4 3 history 2 0.7
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Silicon Sidium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	current 2 0 61 <1 992 1080 1065 1326 3830 current 2 4 3 current 0.6 7.6	history 1 1 0 54 <1 885 985 918 1186 3064 history 1 2 3 history 1 0.8 7.4	history 2 2 0 59 <1 932 1035 1010 1249 3677 history 2 2 4 3 history 2 0.7 7.0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >3 >20	current 2 0 61 <1 992 1080 1065 1326 3830 current 2 4 3 current 0.6 7.6 19.7	history 1 1 0 54 <1 885 985 918 1186 3064 history 1 2 3 history 1 0.8 7.4 19.3	history 2 2 0 59 <1 932 1035 1010 1249 3677 history 2 2 4 3 history 2 0.7 7.0 18.8
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415 method	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >3 >20 >30 3 imit/base	Current 2 0 61 <1 992 1080 1065 1326 3830 current 2 4 3 current 0.6 7.6 19.7 current	history 1 1 0 54 <1 885 985 918 1186 3064 history 1 2 3 history 1 0.8 7.4 19.3 history 1	history 2 2 0 59 <1 932 1035 1010 1249 3677 history 2 2 4 3 history 2 0.7 7.0 18.8 history 2



OIL ANALYSIS REPORT

VISUAL



	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
		ooului	Visual	NONL	NONE	NONL	NONE
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
/23 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Apr8/23 Jun 23/23	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water			>0.2	NEG	NEG	NEG
		scalar	*Visual				
	FLUID PROPE		method	limit/base		history 1	history 2
	Visc @ 100°C	cSt	ASTM D445	15.4	14.2	13.9	14.1
	GRAPHS						
1 1 1	Ferrous Alloys						
/23 -	16 - iron						
Apr8/23	14- nickel						
	12		\sim				
	6						
	4						
	2 -						
			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~			
	Jan 11/21 Jan 4,23		Apr8/23	Jun23/23			
			A	Jur			
	Non-ferrous Meta	ls					
	10 copper						
	8 - Head						
	6- E						
	d: 4						
	2						
		River Landson					
	an 1/21		3/23	3/23			
	Jan1		Apr8/23	Jun23/23			
	Viscosity @ 100°C	C		-	Page Number		
	¹⁹			10	Base Number		
	18 - Abnormal						
	17			(B) 8	.0		
	© ¹⁶ Base			Base Number (mg KOH/g)	.0		
	C 16 0 15 15 14			ier (m			
	⁶³ 14			4 Amn	.0-		
	13 Abnormal			Base	0		
	12			° 2	.0		
	11		-				
	Jan 11/21 Jan 4/23		Apr8/23	Jun23/23	Jan 11/21 Jan 4/23	Apr8/23	
	Jan		Ap	Junc	Jan	Ap	
Laboratory Sample No. Lab Number Unique Number Test Package	: <mark>05892023</mark> · : 10547833	501 Madis Received Diagnose Diagnost	3 GFL Enviro	GFL Environmental - 822 - Springfield Hauli 2120 West Bennett Stre Springfield, M US 6580 Contact: Dennis Moo dennis.moore@gflenv.co			

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